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ABSTRACT

This qualitative study investigated differences, from the point of view of instructors, between teaching college courses over the Web versus in more traditional face-to-face formats. Twenty-one college instructors who had taught in both formats were interviewed. Four of the interviews were by telephone and 17 by e-mail. Interview fragments were categorized and counted for frequency to highlight emerging trends. Results indicate that Web-based classes have a profoundly different communication style than face-to-face classes. This has far-reaching consequences for online classes in terms of greater equality between students and instructors, greater explicitness of written instructions required, greater workloads for instructors, deeper thinking manifested in discussions, and initial feelings of anonymity giving way later to emerging online identities. The authors propose a model with two competing systems--isolation effects and community effects. (AEF)

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Teaching Over the WEB versus Face to Face

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Abstract: This qualitative study investigated differences, from the point of view of instructors, between teaching college courses over the WEB vs. in more traditional face-to-face formats. We interviewed 21 college instructors who had taught in both formats. Four of the interviews were by telephone and 17 by email. Interview fragments were categorized and counted for frequency to highlight emerging trends. Results indicate that web-based classes have profoundly different communication style than face-to-face classes. This has far-reaching consequences for online classes, in terms of greater equality between students and instructors, greater explicitness of written instructions required, greater workloads for instructors, deeper thinking manifested in discussions, initial feelings of anonymity giving way later to emerging online identities. Authors propose a model with two competing systems, isolation effects and community effects.

Introduction

Experiencing a huge demand for college courses taught over the WEB and not wanting to be swept aside by competitors from the commercial sector, universities are often pressuring faculty to teach courses online. Many such faculty have never taught online, and therefore wonder what they are getting into. What are the differences between teaching online versus face to face? What can faculty expect from the experience of teaching college courses over the WEB? Other faculty have some experience teaching online, but haven't shared their experiences, nor read the literature on distance education. Their knowledge remains fragmentary. Are faculty experiences with teaching online specific to the their content area or representative of the larger experience of teaching over the WEB? The current study seeks to integrate the experiences of professors currently teaching online into a qualitative description.

Before embarking on the research, we were aware of a number of research-based notions of distance education. Firstly that it requires a considerable amount of time to design and develop an online class (Williams & Peters, 1997). The instructor must shift from the role of content provider to content facilitator, gain comfort and proficiency in using the web as the primary teacher-student link, learn to teach effectively without the visual control provided by direct eye contact (Williams & Peters, 1997). Moore 1993) suggested that there are three types of interaction necessary for successful distance education: 1) learner-content interaction, 2) learner-instructor interaction and 3) learner-learner interaction. Distance learning courses need to ensure that all three forms of interaction are maximized. Peters (1993) criticizes distance education saying that it reduces education to a kind of industrial production process, lacking the human dimension of group interaction, and even alienating learners from teachers. He compares distance education to a mass-production assembly line process where a division of labor (educators and communications specialists) replaces the more craft oriented approach of traditional face-to-face education. However Peter's (1993) pre-dates the current web-based boom in distance education. His notions, like the computer themes in Stanley Kubrick's 2001: a Space Odyssey, sound slightly like industrial age paranoia towards computers. The personal computer and the internet have probably been a greater force towards individualization than mass production. An updated overall qualitative description of the current instructor experience of college web-based teaching is needed. What are the differences between teaching web-based distance education courses versus teaching face-to-face? The current investigates the online experiences of a number of college instructors.

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The Study

We interviewed 21 instructors who had taught both in the distance and the face to face format. The instructors ranged from assistant professors to adjunct professors. 15 of the 21 instructors taught in the context of the SUNY Learning Network, a non-profit grant funded organization that provides the 15 State Universities of New York (SUNY) with an infrastructure, software, web space, templates for instructors to create their online course, workshops on developing and teaching online courses, a help desk and other technical support for web-based distance education. The remaining 6 informants taught web-based distance education courses in similarly supported situations at state universities in California and Indiana. Four of the interviews were conducted over the telephone and 18 via email. The four telephone interviews occurred first and were used to develop a set of open ended questions for email interviews. Since email interviewing did not require the laborious process of transcription, the email interview process allowed the gathering of data from a much larger number of participants than possible with telephone or face to face interviews alone. By reading over the transcriptions of the telephone interviews, the investigators found emerging themes that were converted into 27 open-ended essay questions comprising the "email interview". The email interview, as it is used in this study, is differentiated from a questionnaire on several counts. It uses open-ended essay-style questions, as opposed to Likert style, fill in the blanks or multiple choice items common to questionnaires. The initial questions included some "chit-chat" and informal questions designed to put the interviewee at their ease. It also involved some degree of interaction between the interviewer and the interviewee. The interviewers sometimes emailed participants follow-up questions to particularly interesting responses. The informants averaged approximately 45 minutes to complete the email interview. The investigators read over all the interviews at least two times, looking for trends and consistencies and generating 39 categories of responses and mnemonic codes to symbolize these categories. Some typical coding categories include **">WK"** meaning that the online classes require more work and **"N FUNNY"** meaning that humor was problematic in the online environment. Three investigators coded the interviews and then counted up the frequencies of the categories of responses, as the number of times a particular response occurred (not the number of informants who said or wrote a particular response). So if one informant wrote at three different times in the interview that online classes required more work, that interview contributed three occurrences of the >WK category, not one occurrence. The coding system was done, not to be objective, but rather to uncover trends in the data. This type of qualitative research is by its nature non-objective. Never-the-less, to get some estimate of the level of consistency between the three investigators who coded, six of the email interviews were coded by all three coders and a comparison made between their codings. We calculated the correlation matrix a between the three coders, with the correlations being 0.681 between coders 1 and 2, 0.685 between 1 and 3, and 0.744 between 2 and 3. The determinate of the correlation matrix, which would be zero if the coders agreed 100 percent and 1 if they were totally independent, is 0.208, certainly much closer to agreement.

Frequency	Symbol	Category Description
29	<CHN	<channels. Less bandwidth for communication online, for example no visual gestures, etc
24	X	Greater explicitness of procedures/lectures online, etc
19	>WK	> work. Instructor spends more work time online than f2f
18	ALL	Everyone has to participate in online discussions
16	WR>>	Written communication results in deeper thinking
16	1st	Up front organization/work online. Time has to be put in before class starts
15	0	Online students are more self-reliant/Online students need to be more self-reliant/ Student commitment required online
15	>INFO	A lot of information resources on the net
13	N ID	Anonymity, lack of bias, indentity disembodied, personality disembodied, no appearance, no ethnicity
13	UR	Personalities emerge online through styles of written communication, consistency of written communication creates a student id
10	><	Rel build Establishing relationships with students online
10	EMAIL	lots of email contact with students
9	=	instructor on a more equal footing with students online than in f2f, students more aggressive towards instructor online
8	<P	Lack of participation/attendance online
8	WW	written record of all dialog
8	C	Freedom of speaking because of anonymity online
7	> 1-1	ind rel Greater individual relationship/communication online
6	>TM	more time management for students online
4	ASYN	asyn pro Asynchronous advantages do it when you feel inspired, not during F2F class time
4	!? INS	instructor have problems with the online environment or dealing with same or having someone deal with them
4	N FUNNY	Humor difficult online

Table 1: Most common types of responses in the interviews.

Findings

Table 1 shows the twenty-one most common types of responses, including in the columns from left to right, the frequency of the response, the mnemonic name of the category and a short description.

Some of the most important, most emphasized and most frequent responses made points we had not directly asked about. A lot these issues related to bandwidth limitations and the dominance of text in the WEB-based classes. Some instructors feel like a life time of teaching skills go by the wayside. They can not use their presence and their classroom skills to get their point across. Nor can they use their oral skills to improvise on the spot to deal with behavior problems or educational opportunities. Because of the reliance on text-based communication and a lack of visual cues, every aspect of the course has to be laid out explicitly, in meticulous detail to avoid misunderstandings. Every lecture must be converted to a typed up document. Directions for every assignment must be spelled out in a logical, self-contained way. Therefore web-based distance classes require considerably more work, often including hundreds of hours of up-front work to set up the course.

On the other hand, the development of an online class, especially if it is the conversion of a face-to-face to the online environment, makes the instructor confront and analyze the material in new and different ways.

"The web course was interesting to develop because it required that I break down pieces of information into small parts and sequence each part in such a way as to make sense to someone who is reading the information on line. Wrestling with how and what to link to what presented many challenges that were good for me. I really had to think about the course and the nature of how it was presented to students.."

Once the course begins, the long hours continue. Online instructors must log on to the course web site at least three or four times a week for a number of hours each session. They respond to threaded discussion questions, evaluate assignments, and above all answer questions clearing up ambiguities, often spending an inordinate time communicating by email. The many instructor hours spent online create an "*online presence*", a psychological perception for students that the instructor is out there and responding to them, without which, students quickly become insecure and tend to drop the class.

This great amount of work sounds intimidating, however, most online instructors looked forward to their time spent online as time away from their hectic face-to-face job, a time spent in an alternate abstracted more intellectual world: *"This is why I like the online environment It's kind of a purified atmosphere. I only know the students to the extent of their work. Obviously their work is revealing about them."*

The web environment presents a number of educational opportunities and advantages over traditional classes, such as many informational resources that can be seamlessly integrated into the class. Instructors can assign web pages as required reading, have students do research projects online using online databases. However it is important that the instructor encourage the students to learn the skills to differentiate valid and useful information from the dregs, as the internet is largely unregulated.

Some instructors also had online guests in their classes, authors of articles, experts in their field, residing at a distance, yet participating in online threaded discussions with the students in the class. All these things could theoretically be accomplished in a tradition class by adding an online component, however because online classes are already on the web, these opportunities are integrated far more naturally.

Other advantages of online classes result from psychological aspects of the medium itself. The emphasis on the written word, resulting from bandwidth limitations, encourages a manifest deeper level of thinking in online classes. A common feature in online classes is the threaded discussion. The fact that students must write their thoughts down and the realization that those thoughts will be exposed semi-permanently to others in the class seem to result in a deeper level of discourse.

" The learning appears more profound as: the discussions seemed both broader and deeper, the students are more willing to engage both their peers and the professor more actively, each student is more completely "exposed", and can not simply sit quietly throughout the semester: the non-participating students are equally as noticeable by their absence from the course as the verbal are noticeable by their presence. the quality of students' contributions can be more refined as they have time to mull concepts around in their thinking as they write, prior to posting."

The asynchronicity of the environment means that the student (or professor) can read a posting and consider their response for a day before posting theirs.

Every student can and, for the most part, does participate in the threaded discussions. In online classes, the instructor usually makes class participation a higher percentage of the class grade, since such participation can be more objectively graded (by both quantity and quality) through instructor access to the permanent archive of threaded discussions, unlike in face-to-face classes, where, because of time constraints, a relatively small percentage of the students can participate in the discussions during one class session. Because of the absence of physical presence and absence of many of the usual in-person cues to personality, there is an initial feeling of anonymity, which allows students who are usually shy in the face to face classroom, to participate in the online classroom. Therefore it is possible and quite typical for all the students to participate in the threaded discussions common to web-based classes.

"... I enjoy these courses and the 'forced' voicing of all the students. One cannot simply sit there and not participate!"

This same feeling of anonymity creates, some political differences, such as more equality between the students and professor in an online class. The lack of a face-to-face persona seems divests the professor of some authority. Students feel free to debate intellectual ideas and even challenge the instructor.

"In a face-to-face class the instructor initiates the action; meeting the class, handing out the syllabus, etc. In online instruction the student initiates the action by going to the web site, posting a message, or doing something. Also I think that students and instructors communicate on a more equal footing where all of the power dynamics of the traditional face-to-face classroom are absent."

"On line you establish yourself again and again with each response."

Students are sometimes aggressive and questioning of authority in ways not seen face-to-face. With the apparent anonymity of the internet, students feel much freer to talk.

"Students tended to get strident with me on line when they felt frustrated, something that never happened in f2f classes because I could work with them, empathize and problem solve before they reached that level of frustration."

In the opening weeks of distance courses there is an anonymity and lack of identity which comes with the loss of various channels of communication. Ironically, as the class progresses, a different type of identity emerges. Consistencies in written communication, ideas and attitudes create a personality that the instructor feels they know.

"Interesting story: recently I had printed out a number of student papers to grade on a plane. And (damn them!) most forgot to type their names into their electronically submitted papers. I went ahead and graded and then guessed who wrote each one. When I was later able to match the papers with the names, I was right each time. Why? Because I knew their writing styles and interests. When all of your communication is written, you figure out these things quickly. I would know if someone else wrote a paper."

This emergence of online identity may make the whole worry of online cheating a moot point. Often stronger one-to-one relationships (instructor-student and student-student) are formed than in face to face classes.

Conclusions

The authors' interpretation of the data is that the different factors discussed above in the results section interrelate with each other in ways that seem complicated at first but turn out to be quite simple if looked at diagrammatically with vectors of causation. We therefore propose a theoretical model. The most common response from online instructors was <CHN, meaning fewer channels of communication online. Fewer channels of communication, <CHN, is the major factor driving two competing systems of causation, 1) ***isolation effects*** and 2) ***community effects***, which together form an ***online paradox***.

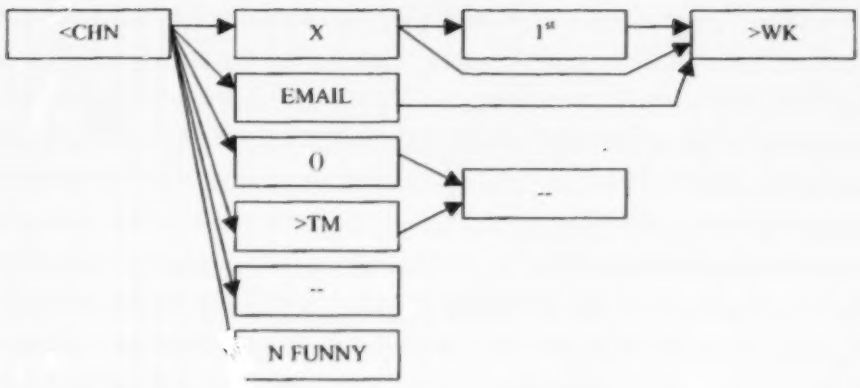

Figure 1: Isolation effects.

Figure 1 shows the isolation effects. Fewer channels of communication (<CHN) results in a need for more explicit communication (X). The need for explicit communication causes the instructor to spend more time developing the material before the course begins, in turn creating more work for the instructor (>WK). The need for explicit communication continues as the course progresses, resulting in still more work for the instructor (>WK). All this online work may minimize time for face-to-face relationships further isolating the instructor. Fewer channels of communication (<CHN) has a number of other isolation effects. <CHN creates ambiguity and student insecurity sometimes forcing the instructor to communicate excessively by email, with a number of negative effects. Since other students can not see the email, the instructor often has to answer the same questions more than once, resulting in more work, >WK, for the instructor. If questions are asked in a public forum, such as threaded discussion, other students can also answer questions, helping to build an online community. On the other hand, email can build individual relationships between the instructor and student. Thus email between instructor and students encourages the instructor-learner interaction and lessens the transactional distance talked about by Moore, but instructor-learner email also lessens learner-learner interaction. If questions are posted in a public place, then often students will help each other, promoting community. The authors advocate minimizing email and suggest that it should be used only for questions requiring confidentiality, such as discussion of grades. <CHN also forces students to be more self-reliant (()) and to exercise greater time-management skills (>TM). These are valuable skills, however some students may need more personal or community support to develop these skills. Thus undergraduate courses may be less appropriate for teaching in online, asynchronous, text dominated environments. Because of <CHN, and the resulting requirement for greater self-reliance and time-management skills, there is a greater attrition rate in online courses (category --). Distribution of grades in online classes often has a "U"-shaped curve, instead of the bell-shape normal distribution. Finally, <CHN creates ambiguity making humor risky in the online environment (N FUNNY). Since humor is a tension releaser, and often a norm binding groups together, N FUNNY is an isolation effect.

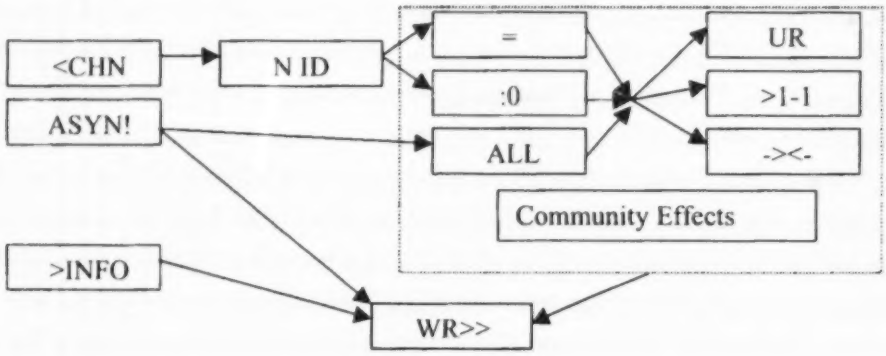

Figure 2. Community Effects

<CHN is the major factor and the advantages of asynchronous environment (ASYN!) the minor factor in creating an array of community effects (See figure 2). <CHN results in an initial loss of identity online (N ID). N ID promotes more equality between instructor and students (=) and greater student freedom of speech online because of the anonymity (:0). The minor factor, advantages of asynchronous environment (ASYN!), allows all of the students to participate in class discussions (ALL). Equality, freedom of speech and all students participating (=, :0 and ALL), result in three other effects, emergence of identity based on consistencies (style) of written communication and ideas (UR), greater individual relationships (>1-1) and building of relationships between instructor and students (-><-). The six effects, greater equality between instructor/students, freedom of speech, all students participating, emergence of online identity, greater individual relationships and building of relationship between instructor/students, are the ***community effects*** of online, web-based, asynchronous distance education. The six community effects, in combination with the advantages of asynchronous environment, the availability of greater information resources over the net (>INFO) and the effects of the written medium itself; result in a deeper level of thinking in this text-based environment (WR>>).

The ***paradox of online education*** is that less channels of communication result in a tension between ***isolation effects*** and ***community effects***. When isolation effects predominate, students drop out, when community effects predominate students succeeding the course; creating a "U"-shaped grade distribution. For those students who do stay with the course, there the potentiality for community is at least as great as for face-to-face classes.

Current web-based online college courses are not an alienating, mass-produced product. They are a labor-intensive, highly text-based, intellectually challenging forum which elicits deeper thinking on the part of the students, and which presents, for better or worse, more equality between instructor and student. Initial feelings of anonymity, not withstanding, over the course of the semester, one-to-one relationships may be emphasized more in online classes than in more traditional face-to-face settings. With the proliferation of online college classes, it is important for professor to understand the flavor of online education, to be re-assured as to its intellectual and academic integrity of this teaching environment.

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